

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1. (Cancelled)
2. (Currently Amended) The component of claim 23 [[4]], wherein the component comprises a bulk acoustic resonator that operates with bulk acoustic waves; and wherein thicknesses of the dielectric layer and the metal layer are in a range of a quarter wavelength of the bulk acoustic waves ~~or in a range of an odd multiple of the quarter wavelength.~~
- 3 and 4. (Cancelled)
5. (Currently Amended) The component of claim 23 [[4]], wherein the dielectric layer comprises an organic layer.
6. (Currently Amended) The component of claim 23 22, wherein the dielectric layer comprises benzocyclobutenes.

7. (Currently Amended) The component of claim 23, wherein the dielectric layer is over substantially an entire surface of the wafer and over the plurality of resonators, ~~a top surface of the dielectric layer being substantially planar such that thicknesses of the dielectric layer needed to implement the acoustic mirror are over the plurality of resonators.~~

8. (Currently Amended) The component of claim 23 ~~[[4]]~~, ~~further comprising: active or passive circuit elements on or within the wafer and integrated with the plurality of resonators into one or more circuits,~~ wherein layers forming the acoustic mirror comprise an encapsulation for the active or passive circuit elements and the plurality of resonators.

9. (Withdrawn) The component of claim 8, wherein the plurality of resonators and the active or passive circuit elements comprise parts of a circuit on the wafer, the circuit comprising one or more of a high-frequency circuit, an adaptation circuit, an antenna circuit, a diode circuit, a transistor circuit, a highpass filter, a lowpass filter, a bandpass filter, a filter having a tunable frequency, a power amplifier, a preamplifier, an LNA, a diplexer, a duplexer, a multfilter, a coupler, a directional coupler, a memory element, a balun, a mixer, and an oscillator.

10. (Currently Amended) An apparatus comprising:  
plural components according to claim 23 ~~[[4]]~~.

11. (Cancelled)

12. (Currently Amended) The component of claim 23 ~~[[4]]~~, wherein the metal layer comprises at least one of tungsten (W), molybdenum (Mo), gold (Au) and aluminum nitride (AlN).

13. (Currently Amended) The component of claim 23 ~~22~~, wherein the low-k dielectric comprises at least one of an aerogel, a porous silicate, an organosilicate, a siloxane derived from condensed silsesquioxanes, a polyaromatic compound, a cross-linked polyphenylene, and a polymerized benzocyclobutene.

14. (Cancelled)

15. (Currently Amended) The component of claim 23 ~~[[4]]~~, wherein ~~the wafer has an underside that comprises solderable connecting terminals,~~ the solderable connecting terminals ~~being~~ are electrically connected to the plurality of resonators or to one or more of a the plurality of active and/or passive components ~~integrated in circuits with the plurality of resonators~~ via feed-throughs in the wafer.

16. (Currently Amended) The component of claim 23 ~~[[4]]~~, wherein the component comprises a bulk acoustic wave resonator, a stacked crystal filter, or a coupled resonator filter.

17. (Currently Amended) The component of claim 23 ~~[[4]]~~, wherein the acoustic mirror comprises at least one other layer pair arranged above the metal layer, the at least one other layer pair comprising a layer of relatively low acoustic impedance and a layer of relatively high acoustic impedance.

18. (Currently Amended) The resonator of claim 23 ~~24~~, wherein the dielectric material comprises ~~a low-k dielectric comprising~~ at least one of an aerogel, a porous silicate, an organosilicate, a siloxane derived from condensed silsesquioxanes, a polyaromatic compound, a cross-linked polyphenylene, and a polymerized benzocyclobutene

19. (Currently Amended) The resonator of claim 23 ~~[[4]]~~, wherein the metal layer comprises ~~at least~~ one of tungsten (W), molybdenum (Mo), gold (Au) and aluminum nitride (AlN).

20. (Currently Amended) The resonator of claim 23 ~~[[4]]~~, wherein the ~~wafer has a surface comprising~~ solderable contacts ~~that~~ are electrically connected to one or more of the a plurality of active and/or passive components.

21 and 22. (Cancelled)

23. (Currently Amended) A component comprising:

a plurality of resonators that form at least a portion of a circuit;

wherein the plurality of resonators comprise layer structures above a wafer, wherein each of the layer structures comprises first and second electrode layers that comprise electrodes, and at least one piezoelectric layer that is between the first and second electrode layers;

a dielectric layer above the plurality of resonators, the dielectric layer comprising a hermetic encapsulation for the plurality of resonators, the dielectric layer comprising a material and having a thickness that results in a first acoustic impedance, the material comprising a low-K dielectric, the dielectric layer having top and bottom surfaces that substantially follow a topology of the plurality of resonators; and

a metal layer above the dielectric layer, the metal layer comprising a material and having a thickness that results in a second acoustic impedance, the second acoustic impedance being higher than the first acoustic impedance, the metal layer and the dielectric layer being parts of an acoustic mirror;

wherein the wafer has a surface comprising solderable contacts that are electrically connected to the plurality of resonators or to one or more of a plurality of active and/or passive components integrated with the plurality of resonators in circuits; and

wherein the plurality of resonators are electrically interconnected by electrode layers of the resonators to form the at least a portion of a circuit.

24. (Currently Amended) The component of claim 23, wherein the low-k dielectric comprises at least one of an aerogel, a porous silicate, an organosilicate, a siloxane derived from

condensed silsesquioxanes, a polyaromatic compound, a cross-linked polyphenylene, and a polymerized benzocyclobutene.

25. (Currently Amended) The component of claim 23 ~~24~~, wherein the component comprises a bulk acoustic resonator that operates with bulk acoustic waves; and wherein thicknesses of the dielectric layer and the metal layer are ~~in a range of a quarter wavelength of the bulk acoustic waves or~~ in a range of an odd multiple of ~~the~~ a quarter wavelength of the bulk acoustic waves.

26. (Currently Amended) The component of claim 23 ~~24~~, wherein the acoustic mirror comprises at least one other layer pair arranged above the metal layer, the at least one other layer pair comprising a layer ~~of relatively low~~ having a first acoustic impedance and a layer ~~of relatively high~~ having a second acoustic impedance, the first acoustic impedance being less than the second acoustic impedance.

27. (Currently Amended) The component of claim 23 ~~22~~, wherein the component comprises a bulk acoustic resonator that operates with bulk acoustic waves; and wherein ~~thicknesses~~ a thickness of the dielectric layer ~~and the metal layer are~~ is in a range of a quarter wavelength of the bulk acoustic waves or in a range of an odd multiple of the quarter wavelength.

28. (Currently Amended) The component of claim 23 ~~22~~, wherein the acoustic mirror comprises ~~at least~~ one other layer pair arranged above the metal layer, the ~~at least~~ one other layer pair comprising a layer of ~~relatively low~~ having a first acoustic impedance and a layer of ~~relatively high~~ having a second acoustic impedance, the first acoustic impedance being less than the second acoustic impedance.

29. (Currently Amended) The component of claim 23, wherein the component comprises a bulk acoustic resonator that operates with bulk acoustic waves; and  
wherein ~~thicknesses of the dielectric layer and a thickness of~~ a thickness of the metal layer ~~are~~ is in a range of a quarter wavelength of the bulk acoustic waves or in a range of an odd multiple of the quarter wavelength.

30. (Currently Amended) The component of claim 23, wherein the acoustic mirror comprises at least one other layer pair arranged above the metal layer, the at least one other layer pair comprising layers having different acoustic impedances ~~a layer of relatively low acoustic impedance and a layer of relatively high acoustic impedance.~~

31. (Currently Amended) The component of claim 23 ~~24~~, wherein ~~the wafer has an underside that comprises solderable connecting terminals,~~ the solderable connecting terminals ~~being~~ are electrically connected to the plurality of resonators ~~or to one or more of a plurality of~~

~~active and/or passive components integrated in circuits with the plurality of resonators via feed-~~  
throughs in the wafer.

32. (Currently Amended) The component of claim ~~23~~ 22, wherein ~~the wafer has an~~  
~~underside that comprises solderable connecting terminals~~, the solderable connecting terminals  
~~being~~ are electrically connected to ~~the plurality of resonators or to one or more of a~~ the plurality  
of active and/or passive components ~~integrated in circuits with the plurality of resonators via~~  
feed-throughs in the wafer.